

will recognize them as they emerge in the development of my theme. I have added footnotes reluctantly, because their very use is today looked at askance, as Fr. Benard tells us in the *American Ecclesiastical Review* of March, 1945. The layman may disregard them; the student will know how to use them.

I must plead guilty to a certain unevenness of treatment. On reading over the manuscript, I cannot help noticing that some sections are developed at greater length than others, that examples and illustrations are multiplied here and unduly lacking there, that not all statements are backed by incontrovertible proofs, and so on. Some or all the defects mentioned might perhaps be remedied by re-writing or rather re-planning the essay; but then it might never see the light of day. Or it might grow—not exactly like Topsy—but like Linné's *Systema Naturae*, which, we are told, grew from 16 pages in the first edition to 2,400 in the tenth. So I plead guilty and beg the reader's indulgence. I offer three excuses for whatever they are worth: first, I am not a scientist by profession; second, the essay was written with a particular end in view; third, this is really pioneer work, and no one blames Columbus for not having raised New York on his first voyage. It is my earnest hope that, after having received so much from my predecessors, I may contribute something toward the advance of scholastic philosophy.

But to attempt a final answer to all the problems involved in the concept of species, one would need the wisdom of Solomon, who "treated about trees, from the cedar of Lebanon to the hyssop that cometh out of the wall, and discoursed of beasts and fowls and creeping things and fishes" (3 Kings 4:33). It is a task which transcends the powers of any single individual, be he an Aristotle or an Albertus Magnus or a Leonardo da Vinci. Only generations of scholars, willing to construct a brave new world, can hope to accomplish it.

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Introductory

1. The real issue between evolutionists and their opponents turns on the *mutability of species*. Evolutionists claim that plant and animal species are changeable, have in fact changed during the immeasurable periods of geology, and will perhaps continue to change. Their opponents, called fixists, deny this. True, evolutionists differ among themselves as to the extent, the mechanism, the purpose of these changes; nor are their opponents agreed on every point of the controversy. But both friend and foe of evolution grant that the fundamental problem to be solved is this: Are the species of nature mutable or not?

Under these conditions, one would expect both parties to the dispute to lay down a clear-cut and universally acceptable *definition* of "species", or at least to indicate unfailing marks of a true species of nature. Indeed, unless the terms of a problem are fixed at the outset, how can the problem itself be discussed profitably? How will the disputants even know when the problem is solved? A truth as old as the hills—or at least as Cicero, who says in his "Orator" that "unless the disputants agree on their subject, the disputation cannot be carried on as it should, nor end in a definite conclusion".

In the controversy then on evolution which has been raging for nearly a century, the definition of "species" should have received the lion's share of the popular and scientific interest, or at least of the scholars who ranged themselves on either side.

Yet strange to say, this question has hitherto received but scant attention. You may scan book after book and article after article bearing on the subject of evolution, but you

will look in vain for an exact definition of "species". Read the "Origin of Species", the book that made Darwin famous; after perusing nearly 400 pages, you will at last come to the disconcerting admission that the author knows of no sure criterion by which species might be distinguished from mere varieties. Father Th. Harper, S.J. (II p. 517) calls such a procedure somewhat odd. Père Vigouroux (III p. 316-7) is more severe: "C'est là dans son oeuvre une lacune dont on a d'autant plus droit d'être surpris, qu'elle est volontaire et réfléchie. Elle trahit l'embarras de l'auteur. Il en résulte de plus que ses conclusions reposent sur une équivoque". We shall have more to say on this "équivoque" later.

Another example of such slipshod writing is Douglas Dewar's book "Making of Species". He casually refers to the definition of "species" on page 89, while happening to discuss de Vries' "elementary species". Now, if one were to write a book on the making of mousetraps, would we not all expect him to tell us in the first chapter what he means by a mousetrap?

Nor can it be said in extenuation that the term "species" is so clear and unequivocal that only a pedantic grouch could demand an explicit definition. For, as we shall see in the fourth chapter, scarcely another word in the English dictionary is so vague in meaning. Not only that, but everyone admits and many deplore the uncomfortable haziness of the term.

2. But altogether apart from the problem of evolution, the definition and exact determination of natural species is of paramount interest for natural history, that is, for *botany* and *zoology*. For it is the legitimate and supreme aim of every science to construct a system, and the first step toward a truly natural system of plants and animals is the determination of natural species. As long as these are

doubtful, the higher classes and the whole system hangs in the air.

For the same reason, the determination of natural species is of importance for *philosophy*. That part of modern cosmology which takes the whole world for its subject-matter, supposes some knowledge of the natural systems so as to investigate their ultimate causes.

Yet philosophy alone is unable to solve the problem. If it were, I have no doubt that Aristotle or at least the medieval Scholastics would have found the solution, and we could sit back and enjoy the fruit of their labor. Dialectic processes, such as were characteristic of decadent scholasticism and are employed almost exclusively in Adler's book "The Problem of Species", may reveal to us possibilities, but not realities.—Nor is science by itself competent. Science, every science, must take its highest notions and principles from a sound philosophy, in particular from a sound metaphysics. Positivism, with its childish horror of metaphysics, will get the scientist nowhere. No true system of actual plant and animal life is possible without a metaphysical skeleton to give it strength and cohesion.

That the determination of natural species then is a *decided want*, should by now be evident. That it demands an unusual knowledge of both science and philosophy, will become clear as we go on. That few have as yet attempted a solution, I ascribe to extrinsic and intrinsic difficulties, into which we need not enter for the present. But the problem is one which modern scholars, evolutionists or fixists, have to face some time or another.

3. The reader will be helped in understanding my solution of the problem if he keeps in mind three principles which underlie it and with which I carried on my research.

a. *Science and philosophy* must not be divorced from each other. They must not be conceived as watertight compart-

ments without mutual communication. Such a separation would render both sterile. Rather they are meant to be of *mutual assistance*. The material object of any science, mathematics included, is part of the material object of philosophy, which, in scholastic understanding, is knowledge of all things through their last causes. And though the sciences differ from philosophy by their formal object, yet the philosopher expects from the scientist a better knowledge of the factual data and of the laws of nature. The scientist, on his side, is bound by the laws of thought and cognition as well as by the first principles of all things, which only philosophy can give him.

It is unfortunate that the term "species" has, as a matter of fact, one meaning in science and another in philosophy. But the situation is not irremediable. Father Urráburu is perfectly right when he says that he does not see why this should be so: "Nec puto unquam disciplinas hasce (zoology and botany) vere scientifice traditum iri, donec principia et notiones suas fundamentales ex Philosophia mutuentur". The remedy is the harmonious union between natural history and philosophy.

b. I do not beg the reader's pardon for relying, almost exclusively, on *scholastic* principles and notions wherever philosophy enters our problem. After all, the Scholastics are the only philosophers who have a system which is strictly logical, embraces all reality as far as possible, and is thoroughly sound in its fundamentals. Of what other philosophical system can the same be said?

I sometimes play with the idea that if scholastic philosophy had not been banished from our academic halls during the last two or three centuries, the problem of species would have been solved long ago.

c. Instead of indulging in vague generalities, I thought it preferable to give *quotations* pro and con. Such a pro-

cedure acquaints the reader with the pertinent literature, and avoids *misrepresenting the opinions of others*. It also shows how far other writers on the subject agree or disagree with my views.

Some may object to the numerous quotations from foreign works. But this Essay is not meant exclusively for English-speaking countries. And the sad fact is that English *Catholic* literature on our subject is wholly inadequate and not always of the highest caliber.

The Domain of Life

We shall not at once attack our specific problem, the determination of species, but shall devote this chapter and the next to a bird's-eye view of the vast domain of life on this earth. Our purpose is to trace its *grand divisions* as well as its essential difference from inorganic nature. Though materialism denies this difference, and though lack of philosophical training or downright prejudice may betray some into denying those divisions, yet common sense admits them both without hesitation.

Still, today it is necessary to offer explicit proofs, because these homely truths have, since the middle of the 18th century, been challenged for various reasons. At that time, de Maillet and Robinet advanced the hypothesis that the lower organisms are merely imperfect attempts of nature at something higher, viz. man, who is the goal of an élan vital present throughout the realm of creation. In his "Histoire naturelle", Buffon wrote: "We see that there is no absolute and essential difference between animals and vegetables, but that nature descends by subtle gradations from what we deem the most perfect animal to one which is less so, and again from this to the vegetable. The fresh-water polypus may perhaps be considered as the lowest animal, and as at the same time the highest plant."¹

Gradually the *principle of continuity* was evolved, the backbone of the modern theory of evolution. *Natura non facit saltus*. All things are fundamentally alike; every division merges into the next; no abrupt transitions can be admitted anywhere, no essential differences.²

What does common sense say?

¹Quoted by L. T. More p. 142-3. Cf. *The World's Greatest Books* XV p. 19.

²Cf. L. T. More p. 213-4.

1. MANKIND

1. Very few will deny that man is in a class by himself and that he constitutes a *natural division* among living creatures. Who indeed would seriously dispute the assertion that all men are essentially the same among themselves as well as essentially different from every other living being on the face of the earth?

We call man an animal. So he is. But do we not all make a clear distinction between man and every other animal we know of? The ourang may resemble us ever so much in anatomical structure and physiological functions; yet who would hesitate for an instant to put him in an entirely different category? We who belong to the white race, may look down (to our shame be it said) on the negro and the Chinaman with a feeling similar to that with which the Brahmin regards the pariah; yet we allow them to open stores in our midst, we trade with them, we converse with them, we close contracts with them; Boston has even colored policemen. As far as manhood is concerned, we put negroes and Chinese on a level with ourselves. Do we act in the same way toward gorillas, ourangs, chimpanzees? Not if we are in our right senses. We lock them up in the zoo or shoot them; we grant no rights to them.

John Locke, the great British philosopher, proposed a difficulty arising from the human foetus, which, in the earlier stages, is indistinguishable from the foetus of an ape or an elephant (*Essay*, Bk. 3, ch. 6 s. 26). The objection is ante-diluvian. But the fact that the human eye cannot distinguish between these foetuses, is no argument against an essential difference. Locke should have taken another fact into consideration, viz. that no human foetus ever develops into an ape or an elephant, and that the foetus of an ape or an elephant never develops into a human being. Why, if there is no essential difference?

An overzealous evolutionist may rise here and remind us that man is really descended from apes or at least has a common ancestry with them, and that he is therefore not essentially different from them. But that descent, if true, happened long ago. We speak of man as we ourselves know him from daily rubbing elbows with him and as authentic history describes him. Both sources reveal a wide gap, a marked difference between man and every other animal, however it may have come about.

2. Man is not only different from all other animals listed in our zoologies; he is *essentially superior* to them.

This statement may not please modern zoologists like G. S. Miller, of the U. S. Natural Museum, who calls man "an insignificant unit in the class to which he belongs", viz. that of mammals.³ Also P. E. Raymond, Professor of Paleontology at Harvard, writes in "Prehistoric Life" (p. 274): "The conception that man is supernaturally set apart from all other animals finds no support in the study of comparative anatomy". Perhaps not, but who ever asked comparative anatomy about the "supernatural"? Still, even anatomically and physiologically man is clearly distinct from apes and their allies. While there is a generic resemblance, man yet differs from them in a number of characteristics, so much so that naturalists place him in a special category, classifying him, after Linné, as *Homo sapiens*.

But man's preeminence becomes manifest when we consider that he alone of all animals is endowed with the power of reflection and free will. Man alone can say I. He alone can freely choose between different goals, knowing himself responsible for his choice. Man alone is his own master; he can voluntarily control his instincts, even the most pressing. No other animal shows any signs of this self-mastery.

³1928 Report of the Smithsonian Institution p. 410.

As today, so from the first dawn of history, man exhibits the faculty of cultural and spiritual advance, of employing systematic thought and speech, of setting himself a goal and striving for it, of carrying out designs first blue-printed in his mind. No evidence of a like faculty, not even the crude beginning of it, has ever been discovered in other animals. Man alone is a *rational animal*.⁴

3. Over against the totalitarian state as well as modern sociology with its mob principles, we also hold that each human being is a *person*. Each man is not only born by himself, but also has his supreme end in himself. That end is independent of and above the family, society and state. For each man has an immortal soul, and is bound to make his fundamental elections in accordance with that fact. Neither the state nor society nor the family have an end beyond this life.

4. For the benefit of those who have received no sound philosophical training, we shall do well to answer briefly the question how man's definitions "rational animal" and "*Homo sapiens*" can apply to *all men*. What their mutual relation is, we shall see below.

a. If man were essentially a rational animal, one might argue, then all men should be guided by right reason in all their doings. Now daily experience clearly negatives this inference. Moreover, what about infants, decrepit old men, insane people? How can they be called rational? And if they are not rational, neither are they persons in the strict sense of the word.

⁴None perhaps has written so entertainingly on this truth of common sense as Chesterton in the first chapter of the "Everlasting Man". Its philosophical implications were well summarized by M. Thiel, in "Divus Thomas" 1942 p. 3-34. Robert Yerkes, of Yale University, devoted 40 years of laborious experiments to proving the essential psychological difference between man and the primates or anthropoids (gorilla, orangutan, chimpanzee, gibbon).

Now the first part of the difficulty really arises from misunderstanding the nature of definitions. When man is defined as a rational animal, that merely means that all men can, proximately or remotely, act rationally, that they are so constituted and feel the urge to act rationally. But not even Aristotle's logic can prevent a man from making a fool of himself.

Infants, Townsends and psychopaths are truly human persons. They can possess and inherit, and nobody is allowed to injure them in life or limb; euthanasia, roundly condemned by Pope Pius XI, is held to be a crime by all sensible people. But in infants the various powers are not yet fully developed, while in old folks they sometimes (not always) show the wear and tear of long usage. Nor does insanity make of a man an irrational animal, any more than cutting off a cat's tail will change the cat into a rabbit. Human nature is present in all its essentials; but some obstacle prevents it from fully unfolding itself.

This brings to mind the old accusation that a council of Macon in France once denied that women were persons. But anyone who has ever looked into the case, knows that the dispute then was one of French philology, and had nothing to do with woman's soul or personality.⁵ In the face of this hoary charge against the Catholic Church, it is amusing to see Mrs. Eleanor Roosevelt lauded not so long ago (*N. Y. Times Sunday Mag.*, Jan. 12, 1941) for stating boldly (under her photo) that women in the future will be regarded as persons.

b. Albert J. Nock, writing in the *Atlantic Monthly* of April 1935, dissents from the scientific definition of man as *Homo sapiens*. Claiming that the label does not fit the immense majority of humans, this master of paradox holds

⁵Cf. *Apologétique* p. 1294-5.

with Ralph Adams Cram that only the exceptional man, "the occasional evolutionary product", deserves the title *Homo sapiens*, and that the mass man is the true missing link.⁶

But it is all a case of taking scientific nomenclature unscientifically. As the term "rational" in the common definition of man must be understood rightly, so the term "sapiens" in the definition accepted by naturalists. It is intended merely to set man off from every other living being, in particular from primates, who have so much in common with man. We shall have more to say about classifying man with the primates, but the zoological definition does not mean, certainly not to zoologists, that none can be called a man unless he is a Newton or an Edison.

2. PLANTS AND ANIMALS

Living beings below man are generally divided into two big classes: plants and animals. Though the division is obvious, yet it is not uncommon today to hear it said that no hard and fast line separates them. Apart from evolutionists, who have an axe to grind, the main arguments are two in number.

1. The first is based on *borderline cases*, such as slime molds, *Euglena*, *Volvox* etc., of which W. C. Allee says (*Newman's The Nature of the World and Man* p. 264): "They combine plant and animal characteristics to such an extent that they are claimed by both botanists and zoologists. There is no distinct line that can be drawn between them and either plants or animals." N. Fasten, Professor and Head of the Department of Zoology, Oregon State College, writes (p. 30): "Often the zoologist classifies them (*Euglena* and *Volvox*) as animals, and just as often the bot-

⁶The editor of the *Atlantic Monthly* assures the reader that Nock's thesis is "the expression of his absolute and considered belief".